

Rural Renewable Energy Development

By

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Rural Renewable Energy Development

- ✓ **MOA's Role for Renewable Energy Issues**
- ✓ **MOA Service & Assistance Network**
- ✓ **Renewable Energy Technology Application in Rural/remote Areas**
- ✓ **Tenth-five Plan for Rural Renewable Energy Development**
- ✓ **MOA/DOE Cooperation Projects**

MOA's Role for Renewable Energy Issues

Main Targets and Functions of MOA

- ♠ to improve agricultural production capacity;
- ♠ to promote rural economy sustainable development; and
- ♠ to increase farmer's income.

MOA's Role for Renewable Energy Issues

Why is MOA Interesting in Renewable Energy?

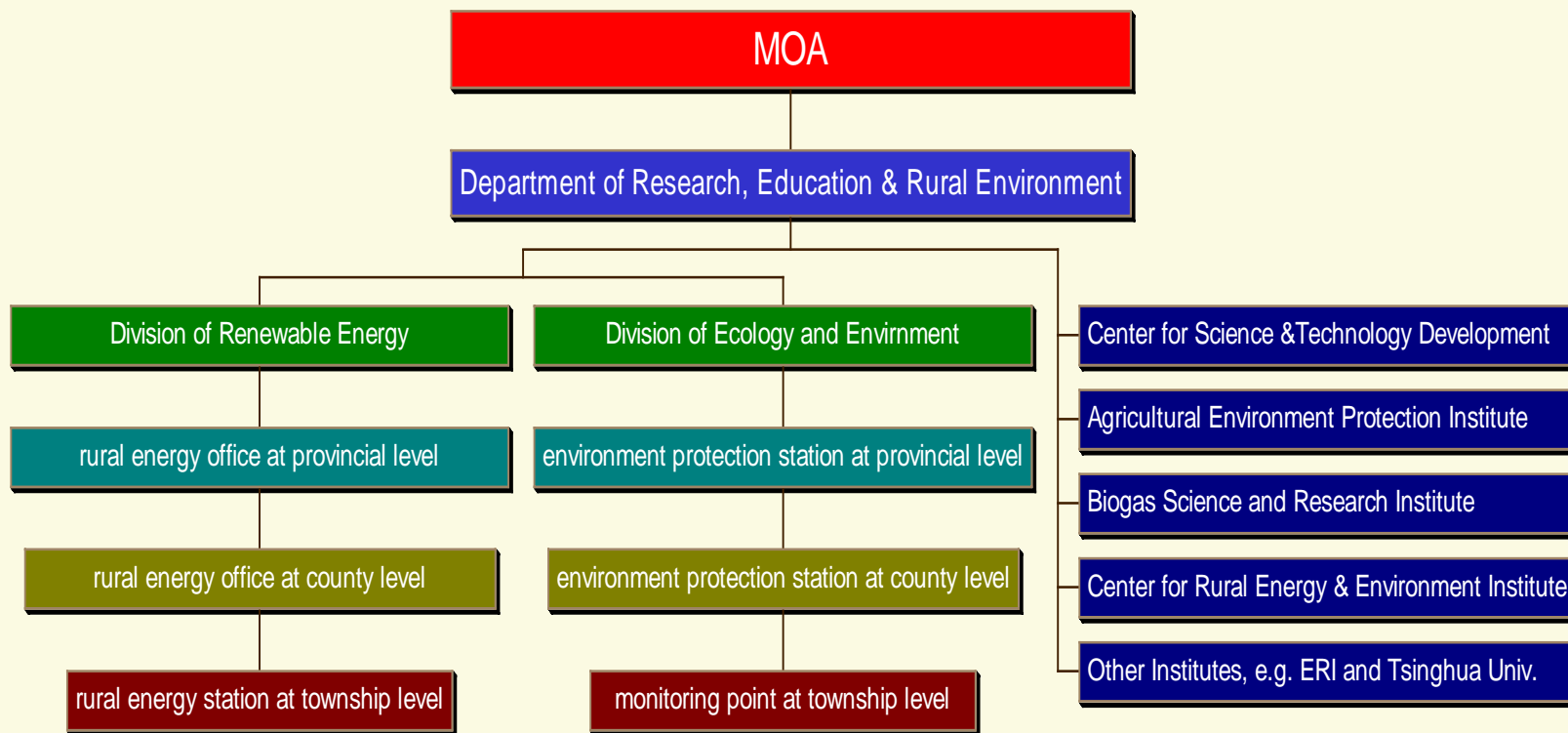
- ♥ energy shortage;
- ♥ abundant renewable resources;
- ♥ environmental protection;
- ♥ poverty alleviation;
- ♥ education
- ♥ health; and
- ♥ women issue.

MOA's Role for Renewable Energy Issues

What is MOA Doing on Renewable Energy?

- ◆ encouraging policy and regulation;
- ◆ formulating short/long term planning;
- ◆ R&D;
- ◆ technologies and products dissemination;
- ◆ training activities; and
- ◆ information transmission.

MOA's Service & Assistance Framework



MOA's Service & Assistance Framework

✓ **Local Rural Energy Offices/Stations Activities on Rural Renewable Energy Development in Rural Areas**

- technologies and products extending;
- products installation;
- technical assistance and support;
- local technicians training; and
- maintenance.

Rural Renewable Energy Application

Main Technologies Application

- ♣ biomass energy;
- ♣ solar energy;
- ♣ hydropower; and
- ♣ wind energy.

Rural Renewable Energy Application

Biomass Technologies

- improved efficient household stoves: 181.5 million;
- home biogas digesters: 6.38 million;
- medium-and-large scale biogas plants in animal farms: more than 500; and
- biomass gasification engineering for village power system: about 300.

Rural Renewable Energy Application

Small Power Technologies

- solar water heaters: 7.89 Mm²;
- solar houses: 6.48 Mm²;
- solar cookers: 0.24 million sets;
- solar home system (SHS): 13 MWp;
- small wind power: 18.12 MW;
- PV/wind hybrid system; and
- micro hydropower generator: 163 MW

Rural Renewable Energy Project/Program



Energy-Ecology-Environment, MOA

Rural Renewable Energy Project/Program



Energy-Ecology-Environment, MOA

Rural Renewable Energy Project/Program



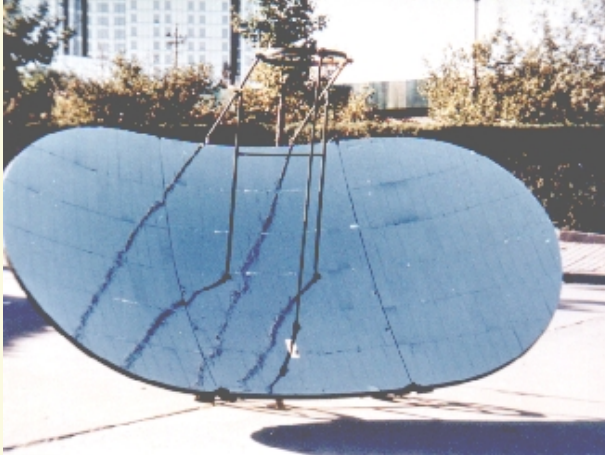
Energy-Ecology-Environment, MOA

Rural Renewable Energy Project/Program



Energy-Ecology-Environment, MOA

Rural Renewable Energy Project/Program



Energy-Ecology-Environment, MOA

Rural Renewable Energy Project/Program

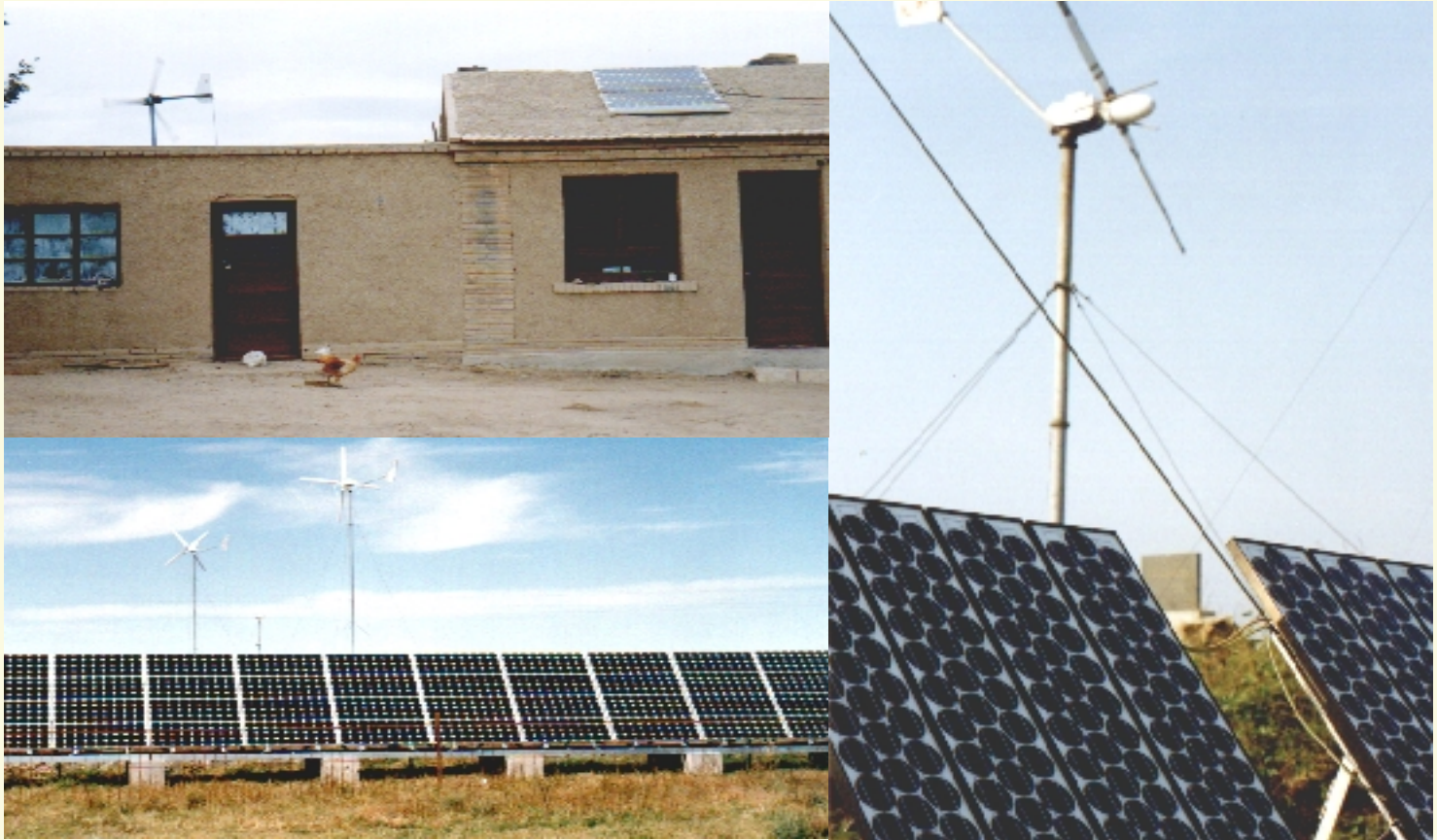


Rural Renewable Energy Project/Program



Energy-Ecology-Environment, MOA

Rural Renewable Energy Project/Program



Energy-Ecology-Environment, MOA

Tenth-five Plan for Rural Renewable Energy

✓ *Objectives*

- to meet increased energy demand;
- to close link with ecological environment and sustainable development;
- to combine with western development and town-village construction, etc.;
- to serve agriculture production, rural economy development and farmer income;
- to be industrialization & commercialization.

Tenth-five Plan for Rural Renewable Energy

✓ *Priority Fields*

- agricultural waste treatment: animal manure and crop straws/stalks;
- small power system: PV, wind and hydro;
- capacity build: human resources and serve network; and
- industry development.

MOA/DOE Cooperation Project

- ✓ *The Energy Efficiency and Renewable Energy Protocol* agreement signed by the Chinese MOST and the U.S. DOE, 1995;
- ✓ For Developing Cooperative Activities In the Area of Renewable Energy under *The Hundred Counties Integrated Rural Energy Construction Program In China* agreement signed by the Chinese MOA and the U.S. DOE in June, 1995.

MOA/DOE Cooperation Project

✓ *Evaluation of Commercialization of Biomass Energy Conversion Technologies and their Market-oriented Development Strategy in China*

- ♠ Studies on the Availability and Logistics of Biomass;
- ♠ Evaluation of Status Quo and Developing Bioenergy Technologies;
- ♠ Case Studies and Analysis;
- ♠ Studies & Design of a Market-Oriented Development Strategy for Biomass

MOA/DOE Cooperation Project



Energy-Ecology-Environment, MOA

MOA/DOE Cooperation Project

- ✓ *The Application and Extension of Solar Photovoltaic Electricity in the Remote Areas of the Gansu Province in China*
- ✓ *Rural Electrification Using Photovoltaics in Northwestern China (Qinghai and Xinjiang)*

MOA/DOE Cooperation Project

✓ *MOA/DOE Project Activities*

- R & D (database, strategy study, market survey and evaluation, etc.);
- Training activities (PV/wind in China, GIS/LCA in NREL);
- Technical exchange (PV/wind Workshop, 4BCOTA);
- Demonstration (home system in Gansu and school system at the Great Wall).

Conclusion

- ✓ Big potential Renewable Energy (RE) market in Chinese rural areas;
- ✓ Four key barriers, such as policy, technology, marketing and finance should be removed as soon as possible;
- ✓ MOA/DOE cooperation project should be implemented continuously and extended more scale.

A scenic view of a Swiss mountain valley. In the foreground, several brown and white cows are grazing in a lush green field. In the background, there are steep, forested mountains and a large, snow-capped mountain peak under a blue sky with scattered white clouds. The text "Thanks & Welcome" is overlaid in the center in a large, white, sans-serif font.

Thanks & Welcome

ENERGY ECOLOGY ENVIRONMENT